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Notice of Allowability

Application No.

10/761,619

Examiner

Derek L. Dupuis

Applicant(s)

AOKI ET AL.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/28/2005.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/18/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

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**KAVEH KIANNI
PRIMARY EXAMINER**

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Schnapf (Reg No 31,656) on 12/1/2005.

The application has been amended as follows:

In line 11 of claim 1, delete the word "waveguide" between the word "incident" and the word "not" and replace it with the word --light--. The phrase should now read "incident light not"

In line 1 of claim 3, delete the words "first material" and replace them with the word --cladding--.

In line 1 of claim 6, delete the words "first material" and replace them with the word --cladding--.

In line 3 of claim 6, delete the words "first material" and replace them with the word --cladding--.

In line 15 of claim 10, delete the word "waveguide" between the word "incident" and the word "not" and replace it with the word --light--. The phrase should now read "incident light not"

In line 1 of claim 12, delete the words "first material" and replace them with the word --cladding--.

In line 1 of claim 15, delete the words "first material" and replace them with the word --cladding--.

In lines 2 and 3 of claim 15, delete the words "first material" and replace them with the word --cladding--.

Drawings

2. The drawings were received on 3/28/2005. These drawings are accepted by the examiner.

Allowable Subject Matter

3. Claims 1-18 are allowed.
4. The following is an examiner's statement of reasons for allowance:
5. Claims 1-18 are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious a device for controllably attenuating an optical signal comprising a waveguide including a core having a first refractive index and a cladding comprising a material with a second refractive index and an electro-optical (EO) material having a first side adjacent to said core and a second side distal from the core; a pair of electrodes to produce an electric field within the EO material and change the refractive index of the EO material; and a layer adjacent to the second side of the EO material having a refractive index approximately equal to the first refractive index; where the proportion of light transmitted through the waveguide varies with the voltage applied to the pair of electrodes, and where at least a portion of incident light not transmitted through the waveguide is transmitted along the layer in combination with the rest of the claimed limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. **Wagoner et al (US 5,966,493)** teach a variable optical attenuator comprising a core (40), a cladding (50), an EO material (60), and an electrode (80). Wagoner teaches that an electric field produced by the electrode can change the refractive index of the EO material (60). However, Wagoner et al does not disclose nor render obvious an EO material with a side adjacent to the core. Wagoner et al explicitly state that a layer (50) of cladding separates the EO material and the core. Furthermore, Wagoner et al do not disclose or render obvious a layer adjacent to a second side of the EO material wherein the layer has the same refractive index as the core material.
8. **Glebov et al (US 2005/0002634 A1)** teach a VOA with a core, a cladding, an EO material, and electrodes as shown in figure 4. However, Glebov et al do not disclose nor render obvious an EO material with a side adjacent to the core layer. The figures show the EO material being separated from the core layer by the cladding layer and an electrode. Furthermore, this reference cannot be used in a rejection under 35 U.S.C. 103(a) because it is commonly owned and has common inventors.
9. **Aoki et al (US 2004/0126079 A1)** teach a VOA with a core, a cladding, an EO material, and electrodes as shown in figure 5. However, Aoki et al do not disclose nor render obvious a layer adjacent to a second side of an EO material that transmits a portion of the light. Furthermore, this reference shares a common assignee and a common inventor with the present application thereby making it unusable as prior art under 35 U.S.C. 103(a).
10. **Galstian et al (US 2003/0103708 A1)** teach a tunable optical attenuator as shown in figure 1. The attenuator includes a core (6), a cladding (8), an EO material (12) and a pair of electrodes (16a and 16b). However, Galstian et al do not disclose nor render obvious an EO material that is adjacent to the core. A portion of the cladding (8) separates the core and the EO material as can be

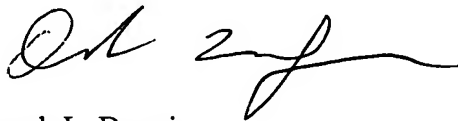
Art Unit: 2883

seen in figure 1. Galstian et al also do not disclose nor render obvious a layer adjacent to a side of the EO material with the same refractive index as the core.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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